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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/475,643	12/30/1999	MICHAEL A. JASSOWSKI	042390.P7143	6610
7590 03/22/2005			EXAMINER	
JOHN P WARD			ZARNEKE, DAVID A	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP 12400 WILSHIRE BOULEVARD 7TH FLOOR			ART UNIT	PAPER NUMBER
LOS ANGELES, CA 90025			2891	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

		Application No.	Applicant(s)				
Office Action Summary		09/475,643	JASSOWSKI, MICHAEL A.				
		Examiner	Art Unit				
		David A. Zarneke	2829				
	The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply						
THE - Exter after - If the - If NC - Failu Any	ORTENED STATUTORY PERIOD FOR REPL MAILING DATE OF THIS COMMUNICATION. nsions of time may be available under the provisions of 37 CFR 1.7 SIX (6) MONTHS from the mailing date of this communication. period for reply specified above is less than thirty (30) days, a reply period for reply is specified above, the maximum statutory period re to reply within the set or extended period for reply will, by statute reply received by the Office later than three months after the mailined patent term adjustment. See 37 CFR 1.704(b).	136(a). In no event, however, may a reply be timely within the statutory minimum of thirty (30) days will apply and will expire SIX (6) MONTHS from e, cause the application to become ABANDONE	nely filed s will be considered timely. the mailing date of this communication. D (35 U.S.C. § 133).				
Status							
1)[\inf	Responsive to communication(s) filed on 28 F	ebruary 2005.					
•		s action is non-final.					
3)	Since this application is in condition for allowance except for formal matters, prosecution as to the merits is						
closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.							
Dispositi	on of Claims						
4)⊠	☑ Claim(s) <u>1-8 and 22-34</u> is/are pending in the application.						
	4a) Of the above claim(s) is/are withdrawn from consideration.						
	5) Claim(s) is/are allowed.						
·	Claim(s) <u>1-8 and 22-34</u> is/are rejected.						
	Claim(s) is/are objected to.						
8)	8) Claim(s) are subject to restriction and/or election requirement.						
Applicati	on Papers						
9)☐ The specification is objected to by the Examiner.							
10)⊠ The drawing(s) filed on <u>12/30/99</u> is/are: a)⊠ accepted or b)⊡ objected to by the Examiner.							
	Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).						
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).							
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.							
Priority ι	ınder 35 U.S.C. § 119						
12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).							
a) ☐ All b) ☐ Some * c) ☐ None of:							
1. Certified copies of the priority documents have been received.							
2. Certified copies of the priority documents have been received in Application No							
	3. Copies of the certified copies of the prior	rity documents have been receive	ed in this National Stage				
	application from the International Burea	u (PCT Rule 17.2(a)).	•				
* See the attached detailed Office action for a list of the certified copies not received.							
Attachmen	t(s)						
1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413)							
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date.							
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 2/28/05. 5) Notice of Informal Patent Application (PTO-152) Other:							

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 2/28/05 has been entered.

Claim Rejections - 35 USC § 102(b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Hayashi et al., US Patent 5,581,109.

Hayashi (figures 1 & 6) teaches a semiconductor device, comprising:

- a die [22] having a first edge and a core (figure 1 & 6, 5+);
- a plurality of bond pads [26] configured in an array between the first edge and the core:

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a first plurality of driver cells [23] located between the first edge and the plurality of bond pads; and

a second plurality of driver cells [21] located between the plurality of bond pads and the core.

Regarding claim 2, Hayashi teaches the plurality of bond pads are configured in a staggered array (figure 10).

Claims are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Pendse et al., US Patent 5,818,114.

Pendse (figure 3) teaches a semiconductor device, comprising:

a die having a first edge and a core;

a plurality of bond pads [316] configured in an array between the first edge and the core;

a first plurality of driver cells [314] located between the first edge and the plurality of bond pads; and

a second plurality of driver cells [312] located between the plurality of bond pads and the core.

Regarding claim 2, Hayashi teaches the plurality of bond pads are configured in a staggered array (figure 3).

Claim Rejections - 35 USC § 102(e)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 28 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Hiraga, US Patent 6,091,089.

Hiraga (figures 1A-1B) teaches a semiconductor device, comprising:

a die [1] having a first edge and a core [2];

a plurality of bond pads [5 & 6] configured in an array between the first edge and the core:

a first plurality of driver cells [10] located between the first edge and the plurality of bond pads; and

a second plurality of driver cells [4] located between the plurality of bond pads and the core.

Regarding claim 2, Hiraga teaches the plurality of bond pads are configured in a staggered array (figure 1B).

With respect to claim 3, Hiraga teaches a plurality of pre-drive cells located between the second plurality of driver cells and the core (5, 20-40).

As to claim 4, Hiraga teaches the plurality of bond pads are configured in a staggered array including an inner ring [5] and an outer ring [6] of bond pads.

In re claim 5, Hiraga teaches a plurality of metal connections, each of the plurality of metal connections to couple one of the first and second pluralities of driver cells to one of the plurality of bond pads (4, 4-12).

Regarding claim 6, Hiraga teaches a plurality of conductive interconnects, each of the plurality of pre-driver cells coupled to one of the first and second pluralities of driver cells by at least one of the plurality of conductive interconnects (5, 20-40).

With respect to claim 28, Hiraga teaches each of the first driver cells is coupled to one of the outer ring of bond pads via one of the metal connections (figure 1A).

As to claim 29, Hiraga teaches each of the second driver cells is coupled to one of the inner ring of bond pads via one of the metal connections (figure 1A).

In re claim 31, Hiraga teaches each of the driver cells provides at least one of a drive strength, reception of incoming signals, and ESD protection of the core (4, 12+).

Regarding claim 32, Hiraga teaches each of the pre-drive cells provides communication between the core and one or more driver cells (4, 12+).

With respect to claim 33, Hiraga teaches at least one driver cell comprises an input/output (1/0) circuit [4 & 10].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- 1. Determining the scope and contents of the prior art.
- 2. Ascertaining the differences between the prior art and the claims at issue.
- 3. Resolving the level of ordinary skill in the pertinent art.
- 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3-8 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al., US Patent 5,581,109, as applied to claim 1 above.

With respect to claim 3, though Hayashi fails to teach a plurality of pre-drive cells located between the second plurality of driver cells and the core, it would have been obvious to one of ordinary skill in the art at the time of the invention to a plurality of pre-drive cells because pre-drive cells are conventionally known in the art. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07).

As to claim 4, Hayashi (figure 10) teaches the plurality of bond pads are configured in a staggered array including an inner ring and an outer ring of bond pads.

In re claim 5, Hayashi teaches a plurality of metal connections [37a], each of the plurality of metal connections to couple one of the first and second pluralities of driver cells to one of the plurality of bond pads (figure 8).

Regarding claim 6, though Hayashi fails to teach a plurality of conductive interconnects, each of the plurality of pre-driver cells coupled to one of the first and second pluralities of driver cells by at least one of the plurality of conductive

interconnects, it would have been obvious to one of ordinary skill in the art at the time of the invention to a plurality of conductive interconnects to couple the pre-driver cells to the driver cells because this is conventionally known in the art. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07).

Regarding claim 7, though Hayashi fails to teach each of the plurality of conductive interconnects substantially more narrow in width than each of the plurality of metal connections, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the relative widths of the conductive interconnects and the metal connects (MPEP 2144.05).

With respect to claim 8, though Hayashi fails to teach the first and second pluralities of driver cells each have a width of approximately 80 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the first and second pluralities of driver cells (MPEP 2144.05).

As to claim 22, though Hayashi fails to teach each of the plurality of metal connections coupling one of the first and second driver cells to one of the bond pads has a width that is approximately up to 80 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the metal connects (MPEP 2144.05).

In re claim 23, though Hayashi fails to teach each of the conductive interconnects coupling a pre-driver cell to one of the first and second driver cells has a width ranging from approximately 1 -2 microns, it would have been obvious to one of ordinary skill in

the art at the time of the invention to optimize the width of the conductive interconnects (MPEP 2144.05).

Regarding claim 24, though Hayashi fails to teach wherein at least one pre-driver cell is coupled to one of the first and second driver cells via multiple conductive interconnects, the mere duplication of parts has no patentable significance unless a new and unexpected result is produced (In re Harza, 124 USPQ 378 (CCPA 1960))...

With respect to claim 25, though Hayashi fails to teach wherein at least one conductive interconnect is disposed on a layer other than a layer where the bond pads are disposed, the disposing of the conductive interconnect on a different layer is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

As to claim 26, though Hayashi fails to teach wherein at least one conductive interconnect is disposed on different layer underneath at least one bond pad, it is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

In re claim 27, though Hayashi fails to teach wherein at least one conductive interconnect is disposed on different layer underneath at least one driver cell, it is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

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With respect to claim 28, Hayashi teaches each of the first driver cells is coupled to one of the outer ring of bond pads via one of the metal connections (figure 8).

As to claim 29, Hayashi teaches each of the second driver cells is coupled to one of the inner ring of bond pads via one of the metal connections (figure 8).

Regarding claim 30, though Hayashi fails to teach at least one of the first and second driver cells is a ESD (electrostatic discharge) cell, the use of an ESD cell is conventionally known in the art. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07).

In re claim 31, Hayashi teaches each of the driver cells provides at least one of a drive strength, reception of incoming signals, and ESD protection of the core (10, 33+).

Regarding claim 32, though Hayashi fails to teach each of the pre-drive cells provides communication between the core and one or more driver cells, the use of pre-driver cell to provide communication with the core is conventionally known in the art. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07). (4, 12+).

With respect to claim 33, Hayashi teaches at least one driver cell comprises an input/output (1/0) circuit [21].

With respect to claim 34, though Hayashi fails to teach at least one metal connection coupling a bond pad and a driver cell has a width substantially equivalent to a width of one of the respective bond pad and the driver cell, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize this width (MPEP 2144.05).

Claims 3-8 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pendse et al., US Patent 5,818,114, as applied to claim 1 above.

With respect to claim 3, though Pendse fails to teach a plurality of pre-drive cells located between the second plurality of driver cells and the core, it would have been obvious to one of ordinary skill in the art at the time of the invention to a plurality of pre-drive cells because pre-drive cells are conventionally known in the art. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07).

As to claim 4, Pendse (figure 3) teaches the plurality of bond pads are configured in a staggered array including an inner ring and an outer ring of bond pads.

In re claim 5, Pendse teaches a plurality of metal connections [318a & 318b], each of the plurality of metal connections to couple one of the first and second pluralities of driver cells to one of the plurality of bond pads (figure 3).

Regarding claim 6, though Pendse fails to teach a plurality of conductive interconnects, each of the plurality of pre-driver cells coupled to one of the first and second pluralities of driver cells by at least one of the plurality of conductive interconnects, it would have been obvious to one of ordinary skill in the art at the time of the invention to a plurality of conductive interconnects to couple the pre-driver cells to the driver cells because this is conventionally known in the art. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07).

Regarding claim 7, though Pendse fails to teach each of the plurality of conductive interconnects substantially more narrow in width than each of the plurality of metal connections, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the relative widths of the conductive interconnects and the metal connects (MPEP 2144.05).

With respect to claim 8, though Pendse fails to teach the first and second pluralities of driver cells each have a width of approximately 80 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the first and second pluralities of driver cells (MPEP 2144.05).

As to claim 22, though Pendse fails to teach each of the plurality of metal connections coupling one of the first and second driver cells to one of the bond pads has a width that is approximately up to 80 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the metal connects (MPEP 2144.05).

In re claim 23, though Pendse fails to teach each of the conductive interconnects coupling a pre-driver cell to one of the first and second driver cells has a width ranging from approximately 1 -2 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the conductive interconnects (MPEP 2144.05).

Regarding claim 24, though Pendse fails to teach wherein at least one pre-driver cell is coupled to one of the first and second driver cells via multiple conductive

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interconnects, the mere duplication of parts has no patentable significance unless a new and unexpected result is produced (In re Harza, 124 USPQ 378 (CCPA 1960))..

With respect to claim 25, though Pendse fails to teach wherein at least one conductive interconnect is disposed on a layer other than a layer where the bond pads are disposed, the disposing of the conductive interconnect on a different layer is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

As to claim 26, though Pendse fails to teach wherein at least one conductive interconnect is disposed on different layer underneath at least one bond pad, it is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

In re claim 27, though Pendse fails to teach wherein at least one conductive interconnect is disposed on different layer underneath at least one driver cell, it is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

With respect to claim 28, Pendse teaches each of the first driver cells is coupled to one of the outer ring of bond pads via one of the metal connections (figure 3).

As to claim 29, Pendse teaches each of the second driver cells is coupled to one of the inner ring of bond pads via one of the metal connections (figure 3).

Regarding claim 30, Pendse teaches at least one of the first and second driver cells is a ESD (electrostatic discharge) cell (3, 50+).

In re claim 31, Pendse teaches each of the driver cells provides at least one of a drive strength, reception of incoming signals, and ESD protection of the core (3, 50+).

Regarding claim 32, though Pendse fails to teach each of the pre-drive cells provides communication between the core and one or more driver cells, the use of pre-driver cell to provide communication with the core is conventionally known in the art.

The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07). (4, 12+).

With respect to claim 33, Pendse teaches at least one driver cell comprises an input/output (1/0) circuit [312].

With respect to claim 34, though Pendse fails to teach at least one metal connection coupling a bond pad and a driver cell has a width substantially equivalent to a width of one of the respective bond pad and the driver cell, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize this width (MPEP 2144.05).

Claims 7, 8, 22-27, 30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga, US Patent 6,091,089, as applied to claim 1 above.

Regarding claim 7, though Hiraga fails to teach each of the plurality of conductive interconnects substantially more narrow in width than each of the plurality of metal connections, it would have been obvious to one of ordinary skill in the art at the time of

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With respect to claim 8, though Hiraga fails to teach the first and second pluralities of driver cells each have a width of approximately 80 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the first and second pluralities of driver cells (MPEP 2144.05).

As to claim 22, though Hiraga fails to teach each of the plurality of metal connections coupling one of the first and second driver cells to one of the bond pads has a width that is approximately up to 80 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the metal connects (MPEP 2144.05).

In re claim 23, though Hiraga fails to teach each of the conductive interconnects coupling a pre-driver cell to one of the first and second driver cells has a width ranging from approximately 1 -2 microns, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the width of the conductive interconnects (MPEP 2144.05).

Regarding claim 24, though Hiraga fails to teach wherein at least one pre-driver cell is coupled to one of the first and second driver cells via multiple conductive interconnects, the mere duplication of parts has no patentable significance unless a new and unexpected result is produced (In re Harza, 124 USPQ 378 (CCPA 1960))..

With respect to claim 25, though Hiraga fails to teach wherein at least one conductive interconnect is disposed on a layer other than a layer where the bond pads

are disposed, the disposing of the conductive interconnect on a different layer is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

As to claim 26, though Hiraga fails to teach wherein at least one conductive interconnect is disposed on different layer underneath at least one bond pad, it is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

In re claim 27, though Hiraga fails to teach wherein at least one conductive interconnect is disposed on different layer underneath at least one driver cell, it is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

Regarding claim 30, though Hiraga fails to teach at least one of the first and second driver cells is a ESD (electrostatic discharge) cell, the use of an ESD cell is conventionally known in the art. The use of conventional materials to perform there known functions in a conventional process is obvious (MPEP 2144.07).

With respect to claim 34, though Hiraga fails to teach at least one metal connection coupling a bond pad and a driver cell has a width substantially equivalent to a width of one of the respective bond pad and the driver cell, it would have been

obvious to one of ordinary skill in the art at the time of the invention to optimize this width (MPEP 2144.05).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-8, and 22-34 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. Jassowski, 6,784,558. Although the conflicting claims are not identical, they are not patentably distinct from each other because while the patent claims attaching the same die as the present application to a leadframe, it would have been obvious to one of ordinary skill in the art to attach the die of the present application to a leadframe because this is conventionally what is done to dice.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (571)-272-1937. The examiner can normally be reached on M-F 7:30 AM-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Baumeister can be reached on (571)-272-1712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David A. Zarneke Primary Examinar

March 19, 2005